

# **EXPLOSIVES SAFETY TRAINING YESTERDAY, TODAY AND TOMORROW**

John w. Gray  
U.S. Army Defense Ammunition Center and School  
Savanna, IL

Concerns for explosives safety and explosives safety training are not new. These concerns date back to the days of black powder when manufacturers were made to locate their facilities away from populated areas. Of course, this action usually occurred only after some catastrophic event. However, the need to isolate these kinds of operations and provide "explosives" safety was well recognized. The list of accidents and incidents is historically long and extends into the present.

Over the years there has been great effort expended by the War Department and then the Department of Defense (DOD) to reduce the number and severity of accidents through training. The origins of this training appear to have taken place during the early 1900s. By the end of World War I, the United States had accumulated the largest stockpile of explosives and ammunition in its history. Part of this stockpile consisted of a relatively new explosive, smokeless powder. The fact that smokeless powder was subject to progressive decomposition and spontaneous ignition was noted early in 1919. This led to an extensive program to identify possibly hazardous quantities of smokeless powder and their locations, as well as other explosive material that may have had limited stability.

Once the material was identified, tests were required to establish and track the stability. As it turned out, there was a severe shortage of individuals with the necessary training, skills and expertise to perform those required tests. Therefore, in the early 1920s, a school was established to train what were then known as Ammunition Inspectors. The School, with its initial 6-week training program was located at the Picatinny Arsenal, Dover, New Jersey. The selection of Picatinny was perhaps poetic justice since smokeless powder was developed at the Arsenal. What better place to train people to investigate their product? This training led to the creation of a Federal career program (CP) with structured training that would vary from the initial 6-week to the 24-month training program of today. Part of the driving force behind the changing length of training was the recognition that there was more to ensuring safety than just chemical stability testing and visual inspections. Training began to encompass the technical aspects of munitions and how and why they function as they do. This in-depth training gave the recipients tools they could use throughout the entire life cycle of the munitions. Examples of some of the areas affected are storage, handling, shipping, maintenance and demilitarization (destruction) of munitions. The Ammunition Inspector Program was amended and improved over the years eventually emerging, after many metamorphoses, as the Quality Assurance Specialist Ammunition Surveillance or QASAS Program of today.

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Over the years, training has been conducted at many different locations besides Picatinny Arsenal including Aberdeen Proving Ground (APG), Maryland and the Delaware Ordnance Depot, New Jersey. Currently, the Ammunition School is a part of the U.S. Army Defense Ammunition Center and School (USADACS) located as a tenant on the Savanna Army Depot Activity (SVADA) (formerly Savanna Ordnance Depot), just north of Savanna, Illinois.

Explosives safety training has been continuously alive and well nurtured at USADACS since the inception of the Ammunition Inspection School (AIS) there in November, 1950.

Explosives safety has always been a primary aspect of the training curriculum for Ammunition Inspectors and their present day counterparts, the QASAS. Over the years, Ammunition Inspectors and QASAS have had responsibility for the enforcement of explosives safety criteria. This responsibility goes back to the 1920s when the Office of the Chief of Ordnance established the civilian career program for ammunition inspectors.

The Ammunition School historically has trained many individuals other than Ammunition Inspectors and QASAS and has endeavored to meet the training needs of many. During the mid-1970s it was realized that specific training courses were needed for ammunition mission personnel within the U.S. Army Materiel Command (AMC) (then DARCOM). At this time the Technical Ammunition Course was established to provide necessary training to ammunition personnel (principally wage grade leaders and supervisors) for the safe conduct of ammunition operations. This and other courses provided by the Ammunition School give primary attention and stress to explosives safety issues. The Special Technical Ammunition Course, for instance, was developed in direct response to the findings of a Blue Ribbon Panel investigating an incident at the Lexington-Bluegrass Army Depot in the mid-1970s.

Until a decade ago, the Ammunition School's raison d'être was primarily the training of QASAS interns. However, it was recognized that there was a firm correlation between the role of the QASAS in the field determining the serviceability of ammunition and others in the logistics community applying that information to manage our ammunition stockpile. With that as a driving force, a new Federal career program, Ammunition Manager, was launched in 1983 when Class #1 began its course of study at the School. This new program opened many vistas for the School and led to the creation of the Ammunition Logistics Department which stood side-by-side with the already extant Conventional, Missile/Chemical and Nuclear Weapons Departments. The curriculum of this new department covers a myriad of ammunition-related subjects some of which are noted later.

The Explosives Safety Management Program (ESMP) was established in 1988. The ESMP assigned responsibility to USADACS to provide explosives safety training to support Army Career Program requirements. As a result of this tasking the U.S. Army Explosives Safety Course (AESC) was developed and is presented to Army Safety Interns and safety career program specialists as required. Currently, students include QASAS interns, Ammunition Management interns, Safety interns and almost anyone else who needs training in ammunition and ammunition/explosives safety. These personnel could include item managers from the International Logistics Division, Headquarters, U.S. Army Armament, Munitions and Chemical Command (HQ, AMCCOM), foreign ammunition officers, members of other U.S. military services and even some people who

work with ammunition hands-on like demolition ground staff.

With the dramatic reduction in training dollars over the last several years, much of the training the School provides is of the on-site variety. Courses have been taught in Alaska, Japan, Europe and Hawaii as well as most ammunition depots, ammunition plants and other locations throughout the continental U.S. We still present resident training but these are usually courses best presented at the School because of its excellent facilities, such as ammunition maintenance line operations or ammunition demilitarization (open detonation).

Additional changes occurred in 1988 when Naval Sea Systems Command (NAVSEASYSCOM) and AMCCOM signed a Memorandum of Agreement (MOA) assigning USADACS the responsibility for the conduct of explosives safety training for NAVSEASYSCOM. A total of four courses are currently available for Navy personnel.

Following are some of the courses available at the Ammunition School in the area of explosives safety. Note that these are only some of the many courses available and comprise unique training not found elsewhere among the military services or in private industry. The selection of courses available encompasses the complete life-cycle logistics of ammunition.

1. U.S. Army Explosives Safety Course
2. Basic Guided Missiles
3. Basic Conventional Ammunition
4. Advanced Conventional Ammunition
5. Explosives safety for Naval Facilities Planning
6. Basics of Naval Hazard Control
7. Two electrical explosives safety courses - one for the Army and one for the Navy
8. Technical Ammunition (Conventional)
9. Special Technical Ammunition
10. Guided Missile Familiarization

To receive a copy of the current Ammunition School catalog write to:

Director, U.S. Army Defense Ammunition Center and School  
ATTN: SMCAC-ASA  
Savanna, Illinois 61074-9639

or call:

DSN: 585-8931

Commercial: (815) 273-8931

In addition to the old tried and true courses that have been presented over the years, there are also several new, up-to-date courses recently developed and presented. New courses are continually being developed as new needs are identified and resourced. Also, current courses are often modified to accommodate specific audiences.

Some of these new courses include:

1. Hazard Analysis for Ammunition Operations
2. Environmental Concerns for Ammunition Personnel (Note that we also present a course entitled Demilitarization Familiarization for Environmental Personnel).
3. Explosives Safety for Firing Ranges
4. Explosives Safety for Defense Contractors (This course was formerly taught at the AMC Field Safety Activity at Charlestown, Indiana)

Some of the ancillary courses which require a knowledge and application of explosives safety principles taught in the Ammunition Logistics Training Department include:

1. Ammunition Storage
2. Expendable Ordnance Management
3. General Transportation of Hazardous Materials, as well as several Navy unique transportation courses.

In the realm of the more exotic commodities, we still do have courses on chemical munitions, as well as courses on radiation hazards and safety. However, the primary impetus in these courses is toward the unique fillers the ammunition items contain and less on the actual explosives employed.

This has been a very brief look at today's Ammunition School and the explosives safety training presented there. We are a growing and expanding institution serving not just the needs of the U.S. Army but all of the uniformed services, other Federal agencies, foreign governments and defense contractors as well. The hazards confronting us in the world of explosives safety today are legion. Concern for explosives safety will become even more important in the years to come as our stocks of ammunition and explosives in storage begin to age and degrade. The fact that more and more ammunition will be retrograded from overseas outposts should concern every ammunition depot commander. Therefore, it is in the best interest of everyone involved with ammunition and explosives to get smart, stay smart and get even smarter in the months and years to come. Our lives could depend on it. USADACS and the Ammunition School are always ready, willing and able to help!